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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/771,907	02/03/2004	Cyril A. Migdal	0206-PA	3867

7590 09/11/2007  
CROMPTON CORPORATION  
Benson Road  
Middlebury, CT 06749

EXAMINER
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LANG, AMY T

ART UNIT	PAPER NUMBER
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3731

MAIL DATE	DELIVERY MODE
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09/11/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

Application No.

10/771,907

Applicant(s)

MIGDAL ET AL.

Examiner

Amy T. Lang

Art Unit

3731

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 07 June 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 15-18, 20-25 and 540 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 540, 15-18, and 20-25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. **Claims 5-8, 15-18, 21, and 22** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claims 5-8, 15-18, 21, and 22 all recite wherein the second antioxidant, a thioether, is solid. However, it is the examiner's position that the instant specification does not recite this limitation. The instant specification recites wherein the first antioxidant (butyl-3-(3,5-di-tert-butyl-4-hydroxyphenyl)propionate), not the second antioxidant, is solid (page 5, lines 21-22). Additionally, the instant specification also discloses the second antioxidant as a fluid, not a solid (page 6, lines 12-14). Therefore, the instant specification does not support the instant claims 5-8, 15-18, 21, and 22.

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Art Unit: 3731

4. **Claims 5-8, 15-18, 21, and 22** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 5-8, 15-18, 21, and 22 all recite wherein the second antioxidant, a thioether, is solid. However, claim 22 discloses the first antioxidant as dissolved in the second antioxidant. Claim 21 discloses the first antioxidant as blended with the second antioxidant. It therefore the examiner's position that is it confusing and unclear how a compound can be dissolved in or blended with a solid material. Since claims 5-8 and 15-18 are dependent upon claims 21 and 22, claims 5-8, 15-18, 21, and 22 are indefinite.

#### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. **Claims 5-10, 15-18, and 20-25** are rejected under 35 U.S.C. 103(a) as being unpatentable over Reyes-Gavilan (EP 1,054,052 A2) in view of Wegmann (WO 2005/023886 A1).

With regard to **claims 5-10 and 15-21**, Reyes-Gavilan discloses a lubricating composition comprised of lubricating oil and antioxidants ([0001], [0048]). The antioxidants encompass a hindered phenolic and a thioether compound having the formula  $(C_{13}H_{27}OCCH_2CH_2)_2S$ , which clearly overlaps the instantly claimed structure in claims 21 and 22. Additionally, the thioether compound overlaps the instantly claimed ditridecyldithiopropionate since both terminal alkyl groups comprise 13 carbon atoms (see instant specification page 5, lines 19-20). Reyes-Gavilan further teaches that other hindered phenolics than specified can be utilized in the composition ([0014]). However, Reyes Gavilan does not specifically disclose the hindered phenolic as butyl-3-(3-5-di-tert-butyl-4-hydroxyphenol)propionate.

Wegmann also discloses a composition that utilizes the combination of hindered phenolic antioxidants and thioether antioxidants to stabilize oxidation (page 1, lines 3-8; page 2, lines 10-12). The hindered phenolic antioxidant is further disclosed as an ester of (3,5-di-tert-butyl-4-hydroxyphenyl)propionic acid with a mono alcohol, such as methanol, ethanol, or octanol (page 7, lines 7-12). Since Wegmann discloses the mono alcohol as having either 1, 2, or 8 –OH groups, it would have been obvious for Wegmann to use butyl, since 4 –OH groups falls between 2 and 8. Therefore, the scope of Wegmann discloses a butyl-3-(3,5-di-tert-butyl-4-hydroxyphenol)propionate antioxidant.

The specific combination of antioxidants disclosed by Wegmann is shown to provide increased thermal stability from the comparative examples disclosed (page 23, lines 6-10).

Reyes-Gavilan discloses the combination of a hindered phenolic antioxidant and thioether antioxidant, where other hindered phenolic antioxidants than disclosed can be utilized. This combination is utilized to resist oxidation by increasing the thermal stability of the composition ([0003]). Wegmann utilizes the same combination, but with a specific hindered phenolic antioxidant, to also produce increased thermal oxidation of the lubricating composition. Since the combination of antioxidants disclosed by Wegmann is shown to produce beneficial results, it therefore would have been obvious to one of ordinary skill at the time of the invention for Reyes-Gavilan to also utilize the specific hindered phenolic antioxidant disclosed by Wegmann for the advantageous results.

The amount of the hindered phenolic antioxidant, as disclosed by Reyes-Gavilan, ranges from 25 to 60 wt% of the lubricating composition, while the amount of the thioether is from 5 to 30 wt% ([0047], [0062]). Therefore, the lubricating composition comprises 60 wt% of the hindered phenolic antioxidant, which is greater than the instantly claimed 40 wt%. Furthermore, if the hindered phenolic is present at 30 wt% and the thioether at 25 wt%, the ratio of hindered phenolic to thioether is 55:45, which clearly overlaps the instant claims.

Other additives are present in the lubricant composition of Reyes-Gavilan including viscosity index improvers, pour point depressants, dispersant, detergents, rust inhibitors, antiwear agents, metal deactivators, and other antioxidants ([0052] – [0060]).

With regard to **claims 22-25**, Reyes-Gavilan teaches incorporating the additional thioether antioxidant with the hindered phenolic antioxidant is advantageous ([0047]). Since Reyes-Gavilan is silent regarding how the thioether is incorporated into the lubricant composition, it would have been obvious to one of ordinary skill at the time of the invention to add the two antioxidants together as a blend solution.

### ***Response to Arguments***

8. Applicant's arguments filed 5/17/2007 have been fully considered but they are not persuasive.

Specifically, applicant argues (A) that there is no motivation to combine the references of Reyes-Gavilan in view of Wegmann since Wegmann shows that butyl-3-(3,5-di-tert-butyl-4-hydroxyphenyl)propionate can be used as an antioxidant for graft polymers and not in a liquid concentrate.

With respect to argument (A), Reyes-Gavilan discloses a lubricant composition comprised of thioethers and hindered phenolic antioxidants. Although Reyes-Gavilan discloses some specific alkylated monophenols, Reyes-Gavilan is open to other known hindered phenolic antioxidants. Wegmann discloses a specific hindered phenolic antioxidant that produces thermal stability when used with a thioether. The hindered phenolic antioxidant of Wegmann is also an alkylated monophenol, specifically the

reaction product producing a butyl-3-(3,5-di-tert-butyl-4-hydroxyphenyl)propionate.

Since Reyes-Gavilan is open to the hindered phenolic utilized and Wegmann discloses a specific and well known alkylated monophenol antioxidant that is advantageous when used with a thioether, it would have been obvious to one of ordinary skill at the time of the invention for Reyes-Gavilan to also utilize the hindered phenolic antioxidant of Wegmann.

Although Wegmann does not specifically teach the antioxidant in a liquid concentrate, Wegmann does teach a well known antioxidant wherein Reyes-Gavilan discloses a broad class (alkylated monophenols) in a lubricant that encompass the antioxidant of Wegmann. Furthermore, the property of a compound is inseparable from the compound so that the hindered phenolic antioxidant of Wegmann would therefore intrinsically function as an antioxidant in a lubricating composition (*In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990)). Therefore, it would have been obvious to one of ordinary skill at the time of the invention for the antioxidant of Wegmann to be utilized in a liquid concentrate.

### **Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Amy T. Lang whose telephone number is 571-272-9057. The examiner can normally be reached on M-F 8:30am-5:00pm.




If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, LoAn Thanh can be reached on 571-272-4966. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

8/23/2007

ATZ

  
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PRIMARY EXAMINER